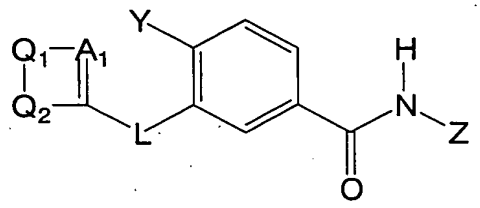
CLAIMS

[1] A compound of formula (II), or a prodrug thereof, or a pharmaceutically acceptable salt of the compound or the prodrug:

[Formula 1]



(II)

where A_1 is C-X_1 or N;

Q_1 is -A_2=A_3-, or a heteroatom selected from -O-, -S-, and -N(R_{10})-; Q_2 is -A_4=A_5-, or a heteroatom selected from -O-, -S-, and -N(R_{10})-; provided that Q_1 and Q_2 are not heteroatoms at the same time;

A_2 is C-X_2 or N, A_3 is C-X_3 or N, A_4 is C-X_4 or N, and A_5 is C-X_5 or N;

R_{10} is a hydrogen atom, C_{1-6}alkyl, haloC_{1-6}alkyl, C_{1-6}alkylcarbonyl or aryl; the aryl being optionally substituted by one or more substituents selected from a halogen atom, C_{1-6}alkyl, and C_{1-6}alkoxy;

X_1, X_2, X_3, X_4 and X_5 are each independently selected from the group consisting of a hydrogen atom, hydroxy, a halogen atom, cyano, hydroxyaminocarbonyl, hydroxyamidino, nitro, amino, amidino, guanidino, C_{1-6}alkylamino, diC_{1-6}alkylamino, C_{1-6}alkylamidino, diC_{1-6}alkylamidino, C_{1-6}alkylguanidino, diC_{1-6}alkylguanidino, C_{1-6}alkylthio,

C_{1-6}alkylsulfo, C_{1-6}alkylsulfonyl, C_{1-6}alkylphosphono, diC_{1-6}alkylphosphono, C_{1-6}alkyl, C_{1-6}alkoxy, C_{3-9}cycloalkyl, C_{3-9}cycloalkoxy, C_{2-7}alkenyl, C_{2-7}alkynyl, C_{1-6}alkylcarbonyl, C_{1-6}alkoxycarbonyl (the above 19 groups may be substituted by one or more substituents selected from a halogen atom, hydroxy, aryl, heteroaryl, and cyano), aryl, aryloxy, arylcarbonyl, heteroaryl, heteroaryloxy, heteroarylcarbonyl, and arylC_{1-6}alkyloxy (the above 7 groups may be substituted by one or more substituents selected from a halogen atom, C_{1-6}alkyl, and C_{1-6}alkoxy); or

X_1 and X_2, X_2 and X_3, X_3 and X_4, and X_4 and X_5, together with the carbon atoms to which they are bound, form a saturated or unsaturated 5- to 7-membered carbocyclic ring, or a saturated or unsaturated 5- to 7-membered heterocyclic ring containing one or more heteroatoms selected from an oxygen atom, a nitrogen atom, and a sulfur atom;

Y is selected from the group consisting of C_{1-6}alkyl, C_{3-9}cycloalkyl, C_{2-7}alkenyl, C_{2-7}alkynyl, C_{1-6}alkylcarbonyl, C_{1-6}alkoxycarbonyl, arylcarbonyl, heteroarylcarbonyl, aryloxycarbonyl, heteroaryloxycarbonyl, C_{1-6}alkoxy, C_{2-7}alkenyloxy, C_{2-7}alkynyloxy, C_{1-6}alkylthio, C_{1-6}alkylsulfonyl {the above 15 groups may be substituted by one or more substituents selected from a saturated or unsaturated 3- to 7-membered carbocyclyl, a saturated or unsaturated 3- to 7-membered heterocyclyl containing one or more heteroatoms selected from an oxygen atom, a nitrogen atom, and a sulfur atom, a halogen atom, hydroxy, C_{1-6}alkoxy, hydroxyC_{1-6}alkoxy, C_{1-6}alkoxyC_{1-6}alkoxy, aminoC_{1-6}alkoxy,

N-C_{1-6}alkylaminoC$_{1-6}$alkoxy, N,N-diC_{1-6}alkylaminoC$_{1-6}$alkoxy, amino, C_{1-6}alkylamino, hydroxyC$_{1-6}$alkylamino, C_{1-6}alkoxyC$_{1-6}$alkylamino, aminoC$_{1-6}$alkylamino, diC_{1-6}alkylamino, bis(hydroxyC$_{1-6}$alkyl)amino, bis(C_{1-6}alkoxyC$_{1-6}$alkyl)amino, bis(aminoC$_{1-6}$alkyl)amino, amidino, C_{1-6}alkylamidino, diC_{1-6}alkylamidino, guanidino, C_{1-6}alkylguanidino, diC_{1-6}alkylguanidino, cyano, carboxyl, C_{1-6}alkoxycarbonyl, C_{1-6}alkylthio, C_{1-6}alkylsulfonyl, C_{1-6}alkylphosphono, and diC_{1-6}alkylphosphono}, amino, C_{1-6}alkylamino, diC_{1-6}alkylamino (the above 2 groups may be substituted by one or more substituents selected from a saturated or unsaturated 3- to 7-membered carbocyclyl, a saturated or unsaturated 3- to 7-membered heterocyclyl containing one or more heteroatoms selected from an oxygen atom, a nitrogen atom, and a sulfur atom, a halogen atom, hydroxy, C_{1-6}alkoxy, hydroxyC$_{1-6}$alkoxy, C_{1-6}alkoxyC$_{1-6}$alkoxy, aminoC$_{1-6}$alkoxy, N-C_{1-6}alkylaminoC$_{1-6}$alkoxy, N,N-diC_{1-6}alkylaminoC$_{1-6}$alkoxy, amino, C_{1-6}alkylamino, hydroxyC$_{1-6}$alkylamino, C_{1-6}alkoxyC$_{1-6}$alkylamino, aminoC$_{1-6}$alkylamino, diC_{1-6}alkylamino, bis(hydroxyC$_{1-6}$alkyl)amino, bis(C_{1-6}alkoxyC$_{1-6}$alkyl)amino, bis(aminoC$_{1-6}$alkyl)amino, amidino, C_{1-6}alkylamidino, diC_{1-6}alkylamidino, guanidino, C_{1-6}alkylguanidino, diC_{1-6}alkylguanidino, cyano, carboxyl, C_{1-6}alkoxycarbonyl, C_{1-6}alkylthio, C_{1-6}alkylsulfonyl, C_{1-6}alkylphosphono, and diC_{1-6}alkylphosphono), a halogen atom, nitro, cyano, carboxyl, and a saturated or unsaturated 3- to 7-membered heterocyclyl containing one or more heteroatoms selected from an oxygen atom, a nitrogen atom, and a sulfur atom (the heterocyclyl may be substituted by

one or more substituents selected from hydroxy, C_{1-6}alkyl, haloC_{1-6}alkyl, hydroxyC_{1-6}alkyl, C_{1-6}alkoxyC_{1-6}alkyl, and oxo);

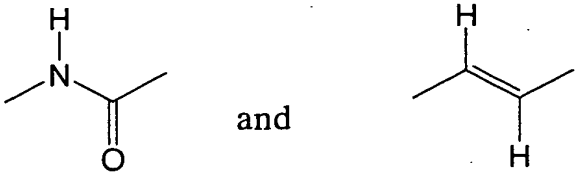
Z is selected from the group consisting of a hydrogen atom, hydroxy, C_{1-6}alkyl, C_{3-9}cycloalkyl {the above 2 groups may be substituted by one or more substituents selected from a saturated or unsaturated 3- to 7-membered carbocyclyl (the carbocyclyl group may be substituted by one or more substituents selected from C_{1-6}alkyl, hydroxyC_{1-6}alkyl, and C_{1-6}alkoxyC_{1-6}alkyl), a saturated or unsaturated 3- to 7-membered heterocyclyl containing one or more heteroatoms selected from an oxygen atom, a nitrogen atom, and a sulfur atom (the heterocyclyl group may be substituted by one or more substituents selected from C_{1-6}alkyl, hydroxyC_{1-6}alkyl, and C_{1-6}alkoxyC_{1-6}alkyl), a halogen atom, hydroxy, C_{1-6}alkoxy, hydroxyC_{1-6}alkoxy, C_{1-6}alkoxyC_{1-6}alkoxy, hydroxyC_{1-6}alkoxyC_{1-6}alkoxy, aminoC_{1-6}alkoxy, N-C_{1-6}alkylaminoC_{1-6}alkoxy, N,N-diC_{1-6}alkylaminoC_{1-6}alkoxy, amino, C_{1-6}alkylamino, hydroxyC_{1-6}alkylamino, C_{1-6}alkoxyC_{1-6}alkylamino, aminoC_{1-6}alkylamino, diC_{1-6}alkylamino, bis(hydroxyC_{1-6}alkyl)amino, bis(C_{1-6}alkoxyC_{1-6}alkyl)amino, bis(aminoC_{1-6}alkyl)amino, cyano, carboxyl, C_{1-6}alkoxycarbonyl, aryloxycarbonyl, carbamoyl, C_{1-6}alkylcarbamoyl, diC_{1-6}alkylcarbamoyl{the above 2 groups may be substituted by one or more substituents selected from a halogen atom, hydroxy, cyano and amino), phosphono, C_{1-6}alkylphosphono, diC_{1-6}alkylphosphono, sulfonic acid, and C_{1-6}alkylsulfo}, and $-OR_1$ and $-NR_1R_2$;

R_1 and R_2 are each dependently selected from the group

consisting of a hydrogen atom, C_{1-6}alkyl, C_{1-6}alkylcarbonyl, and a saturated or unsaturated 3- to 7-membered heterocyclyl containing one or more heteroatoms selected from an oxygen atom, a nitrogen atom, and a sulfur atom (the above 3 groups may be substituted by one or more substituents selected from a saturated or unsaturated 3- to 7-membered carbocyclyl, a saturated or unsaturated 3- to 7-membered heterocyclyl containing one or more heteroatoms selected from an oxygen atom, a nitrogen atom, and a sulfur atom, a halogen atom, hydroxy, C_{1-6}alkoxy, hydroxyC_{1-6}alkoxy, C_{1-6}alkoxyC_{1-6}alkoxy, aminoC_{1-6}alkoxy, N-C_{1-6}alkylaminoC_{1-6}alkoxy, N,N-diC_{1-6}alkylaminoC_{1-6}alkoxy, amino, C_{1-6}alkylamino, hydroxyC_{1-6}alkylamino, C_{1-6}alkoxyC_{1-6}alkylamino, aminoC_{1-6}alkylamino, diC_{1-6}alkylamino, bis(hydroxyC_{1-6}alkyl)amino, bis(C_{1-6}alkoxyC_{1-6}alkyl)amino, bis(aminoC_{1-6}alkyl)amino, cyano, carboxyl, C_{1-6}alkoxycarbonyl, aryloxycarbonyl, phosphono, C_{1-6}alkylphosphono, diC_{1-6}alkylphosphono, sulfonic acid, and C_{1-6}alkylsulfo); or R_1 and R_2, together with the nitrogen atoms to which they are bound, form a saturated or unsaturated 5- to 7-membered heterocyclic ring containing one nitrogen atom and optionally further containing one or more heteroatoms selected from an oxygen atom, a nitrogen atom, and a sulfur atom; and

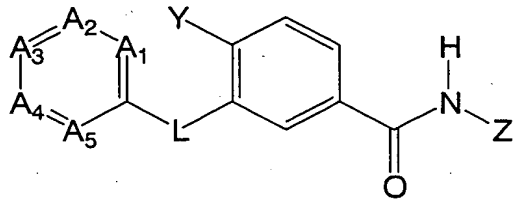
L is selected from the formula:

[Formula 2]



[2] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to claim 1, wherein the compound is represented by the formula (I):

[Formula 3]



(I)

where A_1, A_2, A_3, A_4, A_5, L, Y, and Z are as defined in claim 1.

[3] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to claim 1 or 2, wherein Z is a hydrogen atom, C_{1-6}alkyl, C_{3-9}cycloalkyl, hydroxyC_{1-6}alkyl, hydroxyC_{1-6}alkoxyC_{1-6}alkyl, C_{1-6}alkoxyC_{1-6}alkyl, cyanoC_{1-6}alkyl, pyridylC_{1-6}alkyl, dihydroxyC_{1-6}alkyl, trihydroxyC_{1-6}alkyl, morpholinoC_{1-6}alkyl, (N,N-diC_{1-6}alkylamino)C_{1-6}alkyl, or (N,N-bis(hydroxyC_{1-6}alkyl)amino)C_{1-6}alkyl.

[4] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to claim 3, wherein Z is a hydrogen atom, methyl, ethyl, cyclopropyl, cyclopentyl, 2-hydroxyethyl, 2-(2-hydroxyethoxy)ethyl, 2-methoxyethyl, 2-cyanoethyl, 4-pyridylmethyl, 1-methoxybut-2-yl, 2,3-dihydroxyprop-1-yl, 1,3-dihydroxyprop-2-yl, 1,3-dihydroxy-2-hydroxymethylprop-2-yl, 2-morpholinoethyl, 1-hydroxyprop-2-yl, 1-hydroxy-3-

methylbut-2-yl, 2-(N,N-dimethylamino)ethyl, 2-(N,N-bis(2-hydroxyethyl)amino)ethyl, 2,4-dihydroxylbutyl, 2,3,4-trihydroxybutyl, 2,3,4,5-tetrahydroxypentyl, or 2,3,4,5,6-pentahydroxyhexyl.

[5] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to any one of claims 1 to 4, wherein Y is a halogen atom, cyano, C_{1-6}alkyl, haloC_{1-6}alkyl, C_{2-7}alkenyl, C_{2-7}alkynyl, C_{1-6}alkoxy, C_{3-9}cycloalkylC_{1-6}alkoxy, C_{2-7}alkynyloxy, or haloC_{1-6}alkoxy.

[6] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to claim 5, wherein Y is chloro, bromo, cyano, methyl, trifluoromethyl, ethyl, n-propyl, i-propyl, ethynyl, methoxy, trifluoromethoxy, cyclopropylmethoxy, 2-butyn-1-yloxy, or 2-chloroethoxy.

[7] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to claim 1 or 2, wherein

A_1 is C-X_1 or N, A_2 is C-X_2 or N, A_3 is C-X_3 or N, A_4 is C-X_4 or N, and A_5 is C-X_5 or N;

X_1, X_2, X_3, X_4 and X_5 are each independently selected from a hydrogen atom, a halogen atom, C_{1-6}alkyl, C_{1-6}alkoxy, haloC_{1-6}alkyl, haloC_{1-6}alkoxy, C_{1-6}alkylthio, and haloC_{1-6}alkylthio; or

X_1 and X_2, X_2 and X_3, X_3 and X_4, and X_4 and X_5, together with the carbon atoms to which they are bound, form a cyclohexane ring, a cyclopentane ring, a benzene ring, a

pyridine ring, a pyrimidine ring, a 1,4-dioxane ring, a 1,3-dioxolane ring, a pyrrole ring, an imidazole ring, a thiazole ring, or a furan ring.

[8] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to claim 7, wherein

X_1, X_2, X_3, X_4 and X_5 are each independently selected from a hydrogen atom, fluoro, chloro, bromo, methyl, ethyl, t-butyl, i-propyl, methoxy, i-propoxy, trifluoromethyl, trifluoromethoxy, methylthio, and trifluoromethylthio; or

X_1 and X_2, together with the carbon atoms to which they are bound, form a cyclohexane ring;

X_1 and X_2, together with the carbon atoms to which they are bound, form a pyridine ring;

X_2 and X_3, together with the carbon atoms to which they are bound, form a 1,4-dioxane ring; or

X_2 and X_3, together with the carbon atoms to which they are bound, form a cyclopentane ring.

[9] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to claim 8, wherein A_1 is C-X_1 or N, A_2 is C-X_2, A_3 is C-X_3, A_4 is C-X_4, and A_5 is C-X_5.

[10] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to claim 8, wherein A_1 is C-X_1, A_2 is C-X_2 or N, A_3 is C-X_3, A_4 is C-X_4, and A_5 is C-X_5.

[11] The compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the

prodrug, according to claim 8, wherein A_1 is C-X_1, A_2 is C-X_2, A_3 is C-X_3 or N, A_4 is C-X_4, and A_5 is C-X_5.

[12] A pharmaceutical composition containing the compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to any one of claims 1 to 11, as an active ingredient.

[13] An angiogenesis inhibitor containing the compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to any one of claims 1 to 11, as an active ingredient.

[14] An agent for treatment and prevention of a disease involving angiogenesis, said agent containing the compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to any one of claims 1 to 11, as an active ingredient.

[15] The agent for treatment and prevention, according to claim 14, wherein said disease involving angiogenesis is a cancerous disease.

[16] The agent for treatment and prevention, according to claim 15, wherein said cancerous disease is solid tumor.

[17] An agent for treatment and prevention of metastasis of solid tumor, said agent containing the compound, or the prodrug thereof, or the pharmaceutically acceptable salt of the compound or the prodrug, according to any one of claims 1 to 11, as an active ingredient.